

The alignment between internship tasks and academic qualifications

¹Oratilwe Penwell Mokoena & ²Solly Matshonisa Seeletse

Abstract

This study examined the alignment of internship tasks with the interns' academic qualifications, highlighting instances where interns are either appropriately matched or tasked with duties unrelated to their expertise. This is a qualitative study which used an exploratory study design. To select participants for face-to-face interview, purposive and snowballing sampling techniques were employed. A total of six (6) statistics graduates were the participants in the study. The study found that statistics interns placed in roles aligned with their qualifications felt more prepared for the workplace, while those facing misalignment encounter challenges varying from boredom to frustration. Furthermore, the study uncovered issues of nepotism, lack of mentorship, and potential autocratic practices within some organizations hosting statistics interns. Since the study has a relatively small sample size and focused only on a very narrow group of students, the results cannot be generalized. However, the results have implications to various stakeholders, highlighting collaboration between higher education institutions and organizations through formal agreements to enhance the effectiveness and standardization of internship experiences for students and graduates. Moreover, there is a need for the establishment of structured internship programs with well-defined key performance areas.

Keywords: *internship programs, statistics graduates, skill alignment, workplace experiences*

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About the authors:

¹Corresponding author. Department of Statistical Sciences, Sefako Makgatho Health Sciences University, 1 Molotlegi Street, Ga-Rankuwa, 0204, Gauteng Province, South Africa. Email: oratilwe.mokoena@smu.ac.za

²Department of Statistical Sciences, Sefako Makgatho Health Sciences University, 1 Molotlegi Street, Ga-Rankuwa, 0204, Gauteng Province, South Africa. Email: solly.seeletse@smu.ac.za



1. Introduction

In South Africa, over 18 million people live in extreme poverty, of which approximately over 60% of are the youth aged between 15 and 35 (STATSSA, 2018). This is due to the high youth unemployment of over 30% in 2022 (STATSSA, 2022). The educational inequalities between private and marginalized public schools divide learners post high school (Ewulley et al., 2023), those who received private education are already acquainted with some of the soft and technical skills required in the industry while some of those with public school education are disadvantaged due to little to no resources in their schools. For example, in Sefako Makgatho Health Sciences University (SMU) most of the students in the statistical sciences are from previously disadvantaged backgrounds, without soft and technical skills required in the current industrial revolution. Moreover, the institution also lacks necessary resources to equip students with some of the vital skills needed in industry. Hence, some of the graduates' struggle to compete in industry due to deprivation of needed skills and qualifications.

Internship is a crucial component of the undergraduate curriculum by providing valuable practical experience that complements students' academic qualifications (Grillo, 2023). Hypothetically, integrating high-quality internships as a core component of undergraduate programs is crucial for preparing students for successful careers. By combining rigorous academic training with practical, hands-on experience, programs can ensure their graduates are well-equipped to thrive in the dynamic, data-driven job market. Researches (Galbraith & Mondal, 2020; Nunley et al., 2016; Saltikoff, 2017; Townsley et al., 2017) showed that students who complete multiple internships are twice as likely to find employment within six months of graduation compared to those without any internship experience. Moreover, employers also place significant weight on internship experience when evaluating recent graduates, often viewing it as more important than academic credentials alone. According to Li (2023), certain industry specific core requirements are neglected in college curriculum putting the graduates at a disadvantage to secure employment. While Chandra and Jin (2023) highlight that relying on the text-book style approach impedes the students from surpassing basic knowledge, Basile and Azevedo (2022) argue that students who are ill-equipped cannot tackle complex modern problems. Thus, integrating high-quality internships into undergraduate programs can prepare students for successful careers.

In the institutional context, most undergraduate degree programs (Healthcare Sciences, Oral Healthcare, and Medicine) in SMU requires graduates to do an internship program or community service prior to actual employment, and government assists by placing graduates in various healthcare facilities to be equipped with needed skills set to secure employment post internship or community service (Balay-Odao et al., 2023; Carlsson et al., 2023; Mirchandani & Bhutani, 2023). In the context of statistics and other non-health sciences degree program, such is not the case. For instance, there is no alignment between undergraduate curriculum and industry-related work. In addition, statistics graduate interns struggle with adapting to new technologies, effective communication, and navigating unfamiliar work environments when transitioning to the professional workplace. Hence, they need to do certification not embedded within their course to increase their chances of securing internships and graduate programs.

Studies on internships and alignment with their qualifications revealed that students who do internships are more aligned to their course and tend to thrive in the market. In the law programme, for example, internships are part of the course curriculum assisting students in knowledge acquisition, personal and professional development, and integration of curriculum content and real-world experiences (Blanka et al., 2023). Similarly, in undergraduate nursing, students upon completion of their degree were placed in different hospital to blend theory and practice, and discover their favourite field of work (Balay-Odao et al., 2023; Jahromi et al., 2023), while in Accounting, internships help student to improve cognitive and psychomotor domain competencies (Zulkarnain & Mujahidin, 2023). In the dynamic, data-driven job market statistics is critical to operational functioning, however, statistics graduates struggle to thrive in internships due to negligence of rigorous academic training with practical, hands-on experience not embedded within their qualification, resulting in misalignment between qualification and work activities. Furthermore, in South Africa, most university graduates complete qualifications in their institutions without work experience related to their area of study (Molele et al., 2024; Meyer & Mncayi, 2021; Winterton & Turner, 2019), this includes statistics graduates. As work experience can only be gained by performing duties in a work environment, for which internships provide such an opportunity, this study explores the congruence between the tasks performed during internships and the knowledge and skills acquired during academic studies for stats graduate interns.

2. Literature review

Internship practices can be considered as a method of undertaking experiential learning activities, field of workshop, practical work experience, professional placement or work integrated learning (Valencia-Forrester, 2020). According to Jackson and Bridgstock (2021), internship can be viewed as cooperative education, experiential learning, and work-based learning, mainly because it intertwines practical work experience with theoretical learning. Internship, therefore, is to prepare graduates to be work-ready. In agreement, several authors (Chavan & Carter, 2018; Kroon & Franco, 2022) also refer internship as a programme for new graduates who have just completed their academic theory and still lacking work experience and exposure. Thus, internships are short-term development programmes initiated to prepare graduates to acquire relevant and valuable job experiences and exposure in the fields of their interest.

According to Guzey et al. (2014), blending academic training and real-world experience is instrumental in preparing statistics graduate students for successful careers. Statistics graduate interns are characteristically required to have formidable academic qualifications (Hauber et al., 2016; Smeeton & Sprent, 2016), including enrolment in a qualifying statistics program and familiarity with statistical methodologies. According to Taylor and Bobadilla-Sandoval (2024), the key benefits of internships for statistics students include opportunity to apply classroom concepts to real-world data and research projects, allowing them to develop essential skills like data cleaning, analysis, and communication that are difficult to gain solely through coursework. Exposure to multidisciplinary teamwork and professional communication, which are vital in the field of statistics, increases confidence in their abilities and knowledge of industry expectations, making them more competitive job applicants after graduation. Interns have an opportunity to obtain generic employability skills such as communication, enterprise and abilities to problem solving and persuasion initiative, human relations, leadership, presentation, relationship building, teamwork, the ability to take criticism, and time management (Chalupa & Chadt, 2021; Dhyani et al., 2020; Urbancová & Vrabcová, 2020).

Internship programmes that are aligned to qualifications acquired provide experiences for actual workplace (Helyer & Lee, 2014; Sobri et al., 2023). Consequently, interns who are placed in tasks that are in line with their qualifications find themselves to be ready and prepared

for the workplace. In addition, Schambach and Dirks (2022) found that internships yielded great experience for students and impacted their learning and understanding of the real-world issues and environments. Others studies reported that interns found challenges that were interesting and enlightening as they stretch from new exposures (Kapareliotis et al., 2019; Plant et al., 2019).

According to Blanka et al. (2023), internships enable graduates to expand on knowledge, improve career readiness and choices, offer networking opportunities, and increase graduate leadership skills, among others. Zulkarnain and Mujahidin (2023) found that having internship activities embedded within the course curriculum through course inversion (including business and professional ethics courses) can improve students' affective domain. For example, in the undergraduate nursing programme, Balay-Odao et al. (2023) found that nursing internships expose students to different hospital wards which require different skill sets and thinking, hence, interns could identify their knowledge gaps and develop passion for specific wards in the hospital. Similarly, Jahromi et al. (2023) reported that nursing interns, through their internship, were able to understand staff fatigue and workplace conditions, acceptance by colleagues as a nurse and effective interaction. However, this is not the case for statistics graduates. According to Baird and Mollen (2023), statistics graduate interns face numerous challenges including adapting to new technologies and operating systems, learning to communicate effectively, and overcoming unfamiliar working environments when transitioning from the academic settings to the professional workplace. These critical professional skills are not embedded within the undergraduate statistics curriculum. Other challenges during internship are dissatisfaction on the underutilization of acquired skills, limited room for development, workload issues, and the fear of asking questions (Ainslie & Huffman, 2019; Bran et al., 2024; Downs et al., 2024). Furthermore, interns also showed boredom and frustration in some internship activities (Mensah et al., 2021), which may be attributed to the lack of incentives for trainees (Arias & Pirofski, 2024). Moreover, internships are branded by limited autonomy, minimal influence during decision making, limited co-worker support and deficient cooperation (Oyetunde et al., 2024). Of these challenges, Irawan et al. (2024) suggest that effective communication during internship is a key factor.

3. Methodology

A qualitative exploratory study design was followed to address issues that the statistics graduates were encountering in the internship spaces. Participants were statistics graduates who were serving as interns, or who had served as interns in the previous three (3) months. Participants were selected purposively and snowballed. Althubaiti (2022) defines the sample size (n) as the number of subjects to be included in a study from a population. Qualitative samples usually require small samples (Indrayan & Mishra, 2021; Vasileiou et al., 2018). Rosenthal (2018) states that the qualitative sample size should be large enough to allow addressing of the study phenomenon but sufficient as dictated by saturation, which refers to the point in data collection when no additional insights are identified (Saunders et al., 2018). In addition, Keshoofy et al. (2023) argue that there is no consensus on the minimum sample size for qualitative studies; keystones for qualitative sample sizes are data adequacy and saturation. On saturation, data begin to repeat so that further data collection is redundant, signifying that an adequate sample size is reached. Therefore, in this study, the sample size (n = 6) was determined by saturation at the data collection stage. That is, the researchers continue interviewing the interns until no newer useful data emerged.

The researchers contacted the participants using Microsoft Teams and Zoom to conduct in-depth interviews. Data were collected using a semi-structured interview guide. The guide included questions related to participant demographics such as participant gender, race, level of education, internship role, and duration of internship. To gain a clearer understanding of the experiences of interns, the following four open-ended questions were asked: which tasks were assigned to you?; are you ready for the work environment?; did you apply theory into practice?; and is your internship aligned to your qualification? Though straightforward as it sounds, the guide was given to experts in the field for content validation and piloted before the actual data collection.

The analysis was performed using the thematic content analysis technique, which is a descriptive presentation of qualitative data (Braun & Clarke, 2006; 2012). Firstly, the researchers read through the transcripts several times to identify emerging themes that provided an understanding of the experiences of interns. After reading all transcripts, a list of similar topics was compiled, grouped per the theme.

Anonymity of the participants, confidentiality of their individual responses, voluntary participation, no harm to participants, and informed consent were ethical considerations adhered to in this study. Similarly, Kyngäs et al. (2020) and Shufutinsky (2020) principles to ensure trustworthiness in the qualitative study were applied. Credibility was ensured through prolonged engagement with the graduate interns to enable them to correct or change what they viewed to be a wrong interpretation of their contributions. To ensure the dependability of the study findings, consistency was upheld in the detailed study methodology, such as data collection, which was checked for conveying a common message. Confirmability was also confirmed by using multiple researchers to evaluate the results, interpretations, and recommendations.

4. Findings and Discussion

4.1 Findings

The study included six interns who were all black African male statistics graduates. The interns were based at various institutions, banking (n = 4) and petroleum industry (n = 2).

Verbatim responses from the participants:

“I did statistics, so, I thought I wanted to be given data collection and analysis tasks. I was given some tasks in these aspects, but the internship was much more beyond that. We were exposed to the physical environment of the organisation, how our work impacts on the other tasks and how it helps the organisation. So, we were being trained to relate with other divisions in the organization. We were encouraged to do our best, as they showed us how our bad approaches and our underperformance can harm the organisation. Our activities were data collection, analysis, training, and of course some sundry administrative tasks. It was sometimes boring because there was no work to do, and we were not allowed to ask to do something in the divisions located close to our workstations.”
(Participant 1)

“I have a degree in statistics. I was hoping to be given tasks related to my field, but they exposed me to nothing on pure statistics. Instead, I did economics. They called me with a letter of offer that I would be in statistics. When I arrived, they told me that I had been reallocated to another division, but that I would be trained and supported. We were also introduced to permanent staff of other departments in the organisation. We were given pamphlets to read to familiarise ourselves with partners and other stakeholders outside the organisation. We were promised to

collaborate and communicate with different divisions within the company. We were encouraged to do our best, as they would only how poor performance could impact the organization. As interns we were promised support, but managers did not even look at us. When there seemed to be lacking tasks, the permanent staff assigned us tasks, petty type, and we were even at some point given instructions to perform manual jobs. When I reported, it came out that the message was not delivered, and that the interns were given instructions by some administrative staff who did not even complete the level of junior secondary.” (Participant 2)

“They told us to apply for a stats intern position, but they placed me in finance. Though the tasks were not aligned to stats, my understanding of numbers was helpful. I did not argue when they said I go to finances, except to ask how I was expected to handle finance with a stats background. I think they had made a mistake, but they said it was because of shortage in finances and my performance in third year stats. It took me some time to settle in the tasks, but as I wanted a job, I worked extra hard to earn a space. I had to read reports, books, and consult the internet for some study material related to the work in finance as required on-site. The frustrating part was when sitting admin staff send me to make photocopies or to make coffee or, and they had no decent qualification. I had to ask the mentor about my scope, and clarified the time wasted on me by tea/coffee stuff.” (Participant 3)

“The organisation in which I was placed have no mentors of worth, generally. First, the manager of the department where I was placed refuse to take me, apparently as she had not been told and she wanted to bring her own intern. She told me that I wanted her brother’s job, so I would suffer. When I reported to the senior manager who allocated me, she refused and resigned to leave the organization. I was told to find fit anywhere. There were some departments that were involved on external projects, but they would not involve me because I was an outsider from another company, and that participants in the projects had been trained and I was not. I then volunteered to be a tea/coffee maker for internals staff. I ended up learning software packages all of the afternoons. I did not grow in the subject at all, but I learned interpersonal relationships. Collaboration, networking, and less of a statistician.” (Participant 4)

“I was given an opportunity to become an intern. What a sad story. The department in which I was placed is statistics. The department was headed by a non-statistician, and I was placed there with non-statisticians. I was not told what I was joining them for, and they did not tell me, but I was there. There was a big book which explained what each department’s mandate was, and what our

department was required to do. The staff that I was working with, told me that they were happy with the workload of making tea for their bosses, and then leaving their workstations to go and gossip. I sometime saw an advert of work that our department was required to do, so I approached my manager to discuss it with him and explain what we could do and how we were going to benefit. She made me a project manager immediately, as she was happy that the department was going to do work what it was assigned to do. She also forced me to assign members in the company, despite them not fitting. I came close to resigning but endured as a result. The project failed, dismally. I was blamed for the failure, accepted the blame, and I was fired.” (Participant 5)

“I got an opportunity as an intern. The department in which I was placed is statistics, but it was staffed with non-statisticians. It was challenging. I was working with different type of people with different type of personalities and characteristics. The mentor I was assigned to, did not know what I was expected to do as an intern. I was not exposed to anyone, and I was not even introduced to other people. I approached managers in other divisions, and I also wrote a letter requesting another deployment, I was not allowed to make a shift to another department. I was not trained in anything. Opportunities were there but tempered upon. I learned to cope with stress. That internship gave me stress. No one showed me anything, even when I volunteered, they ignored me. For 11 months I was a loner. I was wasted.” (Participant 6)

Tasks assigned to interns. There were mixed responses regarding tasks assigned to interns where some participants were placed in areas where statistics is the focus of the work and statisticians leading the division while others were placed in areas where statistics was not being done. The latter includes a division with statistical function but manager and staff have limited knowledge and skills of statistics. Interns also had expectations of their own concerning tasks to be assigned as one of the respondents said *“I did statistics, so, I thought I wanted to be given data collection and analysis tasks. I was given some tasks in these aspects, but the internship was much more beyond that”*, supported by another intern saying, *“I have a degree in statistics. I was hoping to be given tasks related to my field, but they exposed me to nothing on pure statistics. Instead, I did economics.”* Tasks vary according to different departments in different industries, and interns should understand the culture of the industry to anticipate which tasks might be given to them. Another intern placed in the finance division said *“though the tasks were not aligned to stats, my understanding of numbers was helpful”*. Thus, when

student understand the theory taught in the class and can connect with industry expectations, they can thrive in any division. In some cases, the interns were also trained in other aspects involving work environment such as communication and other value adding activities. Another intern quips *“I did not argue when they said I go to finances, except to ask how I was expected to handle finance with a stats background”*. While one intern was assigned tasks aligned to his qualification, *“our activities were data collection, analysis, training, and of course some sundry administrative tasks,”* interestingly, the study revealed that some of the interns and other employees within the industry were asked to prepare tea/coffee for other staff members or their bosses, *“I then volunteered to be a tea/coffee maker for internal staff.”* Another intern said, *“the staff that I was working with, told me that they were happy with the workload of making tea for their bosses, and then leaving their workstations to go and gossip.”* Evidently, the findings demonstrate that interns’ task deployment can be unmatched with their qualifications. A task that is not aligned to the learned skill from the academic qualification may be frustrating. Similarly, some interns find their internship programs boring, *“it was sometimes boring because there was no work to do, and we were not allowed to ask to do something in the divisions located close to our workstations”*. Interns may become frustrated when the internship programme is not satisfying and rewarding.

Readiness for work environment. Readiness of statistics interns for work environment also revealed mixed effects. For example, the case of an intern being exposed to data collection and analysis, as well as other tasks that are related to working with others, showed workplace situations beyond the classroom that require readiness. Similarly, the interns placed in finance requires soft skills. While students’ preparedness for work environment is in question, some industries provide support. However, one intern said, *“as interns, we were promised support, but managers did not even look at us”* and another said *“it was sometimes boring because there was no work to do, and we were not allowed to ask to do something in the divisions located close to our workstations.”* Moreover, some of the managers refused to take interns in their division due to nepotism and favoritism. The case for one intern shows that, *“the organisation in which I was placed have no mentors of worth, generally. First, the manager of the department where I was placed refuse to take me, apparently as she had not been told and she wanted to bring her own intern.”* The experiences of the interns indicate preparedness for the hands-on experiences provided by the internship programme while others are below expectations of making the interns ready for work environments. In addition, corruption and

favoritism is still present even with the internship programme.

Alignment of internship programmes to qualifications. The placement of the graduates into different divisions shows differing arguments on the alignment of qualifications. For instance, those were placement oversee the statistics department had both technical and soft skills development to make them work ready. However, they were not given mentors and supervisors that are experts in their fields, *“the department was headed by a non-statistician, and I was placed there with non-statisticians.”* Similarly, the placements in economics and finance are not aligned, although some similar tasks may arise. Being placed in a non-statistic division with no statistician involved in mentoring is a clear misalignment.

Applying theory to intern activities. The placements on economics, finance, and non-statistics departments are clear indications of not applying statistics theory and concepts learned from the classroom. Similarly, the lack of statistics experts as managers and mentors showed poor application of specialised knowledge, *“the department in which I was placed is statistics, but it was staffed with non-statisticians.”* As the case of one intern, *“I was not allowed to make a shift to another department,”* shows the irrelevance of the internship tasks to their specialisation. Moreover, staff shortfall contributes to the misalignment as interns were placed in fields to compensate with the limited workforce, *“I did not argue when they said I go to finance, except to ask how I was expected to handle finance with a statistics background. I think they had made a mistake, but they said it was because of shortage in finance and my performance in third year statistics.”*

4.2 Discussion

Concerning tasks assigned, interns whose tasks were in line with their learned skills and acquired qualifications were motivated and better prepared for actual workplace. However, more interns seem to have been required to do jobs that require skills not aligned with the qualifications. Internship programmes that are aligned to the qualifications acquired provide experiences for the actual workplace (Helyer & Lee, 2014; Sobri et al., 2023). Moreover, internship challenges pose interest and enlightenment as they trained interns through actual workplace scenarios they are exposed to (Kapareliotis et al., 2019; Plant et al., 2019). However, as the interns in this study narrated, the internship tasks create boredom and frustration due to activities that were not challenging their thoughts (Mensah et al., 2021; Karunaratne & Perera, 2019) and misaligned tasks that waste the interns' time (Woo et al., 2017).

On the preparedness of interns for the actual workplace, many misaligned interns showed lack of confidence on being work ready indicating no actual activities that are within their specialisations that made them prepared. The findings were inconsistent with the reports of Schambach and Dirks (2022) that internships yielded great experience for students and impacted their learning and understanding of the real-world issues and environments. While Galbraith and Mondal (2020) argue on the importance of internships in increasing the employability of graduates and preparing them for their career, Kapareliotis et al. (2019) pinpoint on the internship experience aligned well with the demands of the employer at work and can integrate course content with real-world scenarios to make informed decisions. Similar with the findings of Zehr and Korte (2020), interns in this study failed to look for connections between work environment and classroom content and this constrained them to put knowledge into practice. Moreover, supervisors were also ill-prepared to guide interns during their internship.

Interns also revealed mixed views on the alignment of daily tasks with their qualifications. Some of them asserted working on tasks with little relevance to their qualifications while others exposed performing not within their line of specialisations. In their work stations, some mentors and supervisors do not conform with the interns' job descriptions giving other institutional tasks whenever personnel are not available. This is the similar findings of Thi Ngoc Ha and Dakich (2022) that interns are normally given workplace assignments beyond their job descriptions, which Wan et al. (2023) further highlighted due to interns' frustrations on tasks indicated and agreed in the internship agreement but were not the actual tasks performed during the internship programme.

The study findings also highlighted refusal of some managers to full assist and support interns, such as not properly guiding and informing about their tasks, not given a mentor or immediate supervisor, which are the same concerns emphasized by Gumba (2020), To and Lung (2020) and Covalski et al. (2021) and giving preference to relatives of permanent staff, which raises question on nepotism, granting advantages to relatives or close friends in various fields (Gusman, 2024). This actually resulted to the placement of non-statistical personnel in the statistics department, creating mismatch in the workplace that eventually affected the misalignment of the interns. On the other hand, the refusal of the manager to accept an already hired intern raises question on human resource and leadership practices. Moreover, the

question of autocracy seems to apply. According to Baturu and Tolstrup (2024), autocracy is a form of authority where one leader holds absolute control and decision-making power over all matters of organisation and the personnel, the leader being not accountable to anyone. In this case, the attempt to use autocracy compromised the appointed intern. Similarly, there seems lack of performance measurement on the key areas of intern development as well as internship programme policy. However, the experiences of the interns raise doubts on the occurrence of internship agreement between the higher education institutions (HEIs) and the organisations accepting student-interns. If the memorandum of agreement has been signed, it could have outlined the roles and responsibilities of each party, as well as the expected outcomes and performance standards for the interns. In this case, the HEIs also need to implement robust policies and monitoring mechanisms to ensure that internship tasks are aligned with the interns' qualifications and that the internship experience is truly beneficial for the interns' professional development.

5. Conclusion

While internship programs provide valuable, work-related experiences for interns, this study pointed out some cases of misaligned internship experiences with interns' qualifications and skills. The study argues that relevant and aligned internship programme develops and prepares the interns for work placement. However, majority of the interns in this study had irrelevant experiences to their area of specialisation. Hence, many of them felt that the internships did not adequately prepared them for the workplace.

In the light of the revelation of the interns, it highlighted the lack of communication and coordination between HEIs and organizations regarding the internship program, as well as a lack of clear policies and performance monitoring to ensure the quality and effectiveness of the internship experience. Hence, clear agreements and memorandums of understanding regarding the internship program are highly recommended, outlining the roles and responsibilities of each party, as well as the expected outcomes and performance standards for the interns. Similarly, the study recommends setting of clear objectives and task alignment, comprehensive onboarding to align interns with company culture and offering training sessions for growth and empowerment. Furthermore, interns should be given mentors, monitored, and provided with feedback for their given tasks.

While the results clearly emphasised the interns' actual experiences, it has limited number of participants, which could not be generally taken as the same experience of all the interns in other departments and industries. Similarly, the limited opportunities for the interns specialised in statistics might have affected the misalignment. Hence, further studies can increase the number of participants and compare internship experiences in different programmes.

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ORCID

Oratilwe Penwell Mokoena - <https://orcid.org/0000-0002-0746-1198>

Solly Matshonisa Seeletse - <https://orcid.org/0000-0001-7728-3748>

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